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INFECTIOUS MYXOMATOSIS OF DOMESTIC RABBITS

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OCCURRENCE AND COMMON NAMES

Rabbit breeders in southern California have been experiencing heavy losses during the past few years through infectious myxomatosis, a rapidly fatal, contagious disease in rabbits, caused by the filtrable virus Myxomatosum. The disease there has been found to be essentially the same in symptoms, pathology, infectiveness, and transmission as the infectious myxomatosis first identified in South America in 1898. The first outbreak in California occurred in the summer of 1927, in the San Fernando Valley, Los Angeles County. It reappeared in succeeding years and spread northward. By 1937 it had penetrated along the coast to areas near Corvallis, Oreg. Later in the same year epizootics occurred 100 miles inland near Marysville and Bakersfield, Calif. So far as known, a definite survey of the geographic spread of the disease has not been made.

Descriptive names given the disease by breeders are in general use. It is called "big-head disease" from the characteristic swelling and congestion in the first stages; "mosquito disease" from an early suspected association with the mosquito; and "Mexican fever" because of a prevalent idea that the infection was introduced from Mexico.

SYMPTOMS AND MORTALITY

The disease has been studied in the laboratory of the Los Angeles Wildlife Disease Research Station and in a wide range of rabbitries. The symptoms are so characteristic that breeders soon learn to recognize them. The first usually appear 9 to 12 days after natural exposure to the disease, though periods of incubation up to 30 days have been noted in rabbits experimentally infected. These symptoms are dullness

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of the eyes and inflammation of the lining of the eyelids and of body openings. Swelling about the ears, lips, and nose becomes acute and is accompanied by a purulent discharge from nose and eyes. As the disease progresses, tumorlike nodules appear about the nose and eyes and upon the ears, which are congested, inflamed, and drooping. The external genital organs are usually enlarged, the soft parts being swollen and inflamed. Breathing is progressively more difficult. The animal becomes listless and refuses food. Temperatures range from 104° to 108° F.

The mortality is practically 100 percent, death occurring about 5 days after the first appearance of the symptoms, but in the more acute attacks death may ensue within 24 to 72 hours. In rabbits suffering from a subacute attack, particularly in cool weather, the progress is slower, and the tumorlike nodules about the nose, eyes, and ears become firm. Nodules also develop upon the flanks and feet. No symptoms are apparent until 5 to 7 days after the disease has become active in the rabbit, hence the breeder is unaware of the infection until about 72 hours before death occurs.

Only a few cases of infection have been reported among rabbits under 4 weeks of age, and but a slightly greater number among those between 4 and 8 weeks of age. Among the older rabbits, however, 90 percent or more may become infected unless control measures are immediately put into effect.

POST=MORTEM APPEARANCE

Autopsies on rabbits that have died from the usual rapid course of myxomatosis have revealed few gross internal changes that can be considered characteristic. Progression of this disease varies with the natural resistance of the individual rabbit, so the actual cause of death may develop in various vital organs.

Gradual thickening of the skin has been observed in all cases. If the nodules are incised, the cut surface is white, gelatinous, and glistening, and has a tendency to bulge. A clear, serous fluid exudes under pressure. Areas of gelatinous material containing masses of tumorlike cells have also been observed in the deep layer of the skin and in subcutaneous tissues. The spleen is enlarged, dark, and spongy. Congestion or partial solidification has been noted in the lungs, even in the first stages of the disease. Frequently the infected rabbits die of a secondary pneumonia. Examination of other organs disclosed a characteristic lack of lesions.

VIRULENCE

A wide divergence in the virulence of the disease in different localities has been noted. In one particular place the course has invariably been rapid, ravaging entire herds and resulting in death in 24 to 48 hours. All the symptoms developed almost simultaneously.

At the same time at other rabbitries within a radius of a mile the disease ran the normal course of 3 to 10 days before death.

It is impossible at present to account for this divergence in virulence by differences in terrain, climate, or a possible natural immunity of breed, as such factors, so far as observed, were approximately the same in all instances. Mosquito infestations were heavy in each locality.

TRANSMISSION

The disease is highly infectious among rabbits, but it does not appear to be transmissible to other animals or to man. The black-tailed jack rabbit, the varying hare, and the common wild cottontail have shown resistance to it in laboratory tests by capable workers.

When a normal rabbit comes in contact with a diseased rabbit, the healthy one is likely to become infected. Even the hutch of the diseased rabbit and its equipment can at times serve as a source of infection.

During investigations of severe outbreaks of myxomatosis in 1937, 1938, and 1939 it was noted that in each case mosquitoes were present in and about the hutches, and that there were mosquito-breeding places nearby. It was also observed that no cases of the disease were reported during the months in which mosquitoes were inactive. Experiments have shown that infection does not occur in screened rabbitries or where mosquitoes are kept away from the hutches. It has also been demonstrated in the laboratory that mosquitoes are capable of carrying the virus on their mouth parts and thus transmitting the disease from sick to healthy rabbits.

CONTROL

No practical medicinal treatment of myxomatosis has been developed. The best method of control consists of early recognition of the disease and immediate destruction of all animals showing symptoms. Dead animals and all bedding, litter, and unused feed in pens in which infected or exposed rabbits have been kept should be burned or buried several feet under ground as soon as possible. Animals that have been exposed to infection by contact should be placed in quarantine for 20 days, and the hutches and equipment should be thoroughly scrubbed with a reliable phenol or other disinfectant solution. Elimination of all mosquito-breeding places in the immediate vicinity of a rabbitry is most desirable. If this is impossible or impracticable, the hutches should be screened or an insect spray should be used in and about the hutches every 8 hours, care being taken to avoid any kind that might be injurious to the vision or the respiration of the animals. Whenever second-hand equipment is obtained, it should be disinfected thoroughly before being used.